

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

06/848,017 04/03/86 HYATT

G 307

TM11/0928

GILBERT P. HYATT
P. O. BOX 81230
LAS VEGAS NV 89180

EXAMINER

HARRELL, R

ART UNIT	PAPER NUMBER
----------	--------------

2152

23

DATE MAILED: 09/28/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 06/848,017	Applicant(s) Hyatt
Examiner	Art Unit 2152	
Robert B. Harrell		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09 September 1991.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 5 and 41-97 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 5 and 41-97 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- Notice of References Cited (PTO-892)
- Notice of Draftsperson's Patent Drawing Review (PTO-948)
- Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4,22 .

4) Interview Summary (PTO-413) Paper No(s). _____
5) Notice of Informal Patent Application (PTO-152)
6) Other: *Office action*

1. Claims 5 and 41-97 remain for examination. They all stand objected and rejected on all grounds as provided below.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The status of all related applications in this application must be updated (e.g., abandoned, pending, or the current U.S. Patent number).
4. It is noted that the applicant makes reference under 35 U.S.C. 120 for application 879,293, filed November 24, 1969 (now abandoned) (e.g., see Declaration For Patent Application (Oath)). However, that application was fully disclosed in "Computer Design" October 1968 (pages 56-59) (and in "Computer Design November 1968 (examiner assumes the first of November) pages 68-75 (references of record) making that application and its disclosure a statutory bar under 35 U.S.C. 102(b). Furthermore, none of the claimed subject matter of this application was present in that application and thus November 24, 1969 is not the earliest filing date for this application for at least these reasons.

5. The following is a quotation of the first paragraph of 35 U.S.C 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. The specification is objected to under 35 U.S.C 112, first paragraph, as failing to provide an adequate written description and/or enablement for the following reasons.
7. This application makes claim under 35 U.S.C. 120 to the benefit of earlier filed United States Patent Applications 879,293 (filed 11/24/69) and 101,881 (filed 12/28/70). Upon examination of this application, it has been found that the claims of this application either suggest (in light of the specification (e.g., see page 15) or specifically recite a system implemented on a single integrated circuit chip or the use of such in a process. However, it was determined before the Board of Patent Appeals and Interferences that there was no adequate written description for a data processing system which is implemented on a single integrated circuit chip (see Decision at Final Hearing: March 21, 1995, Hyatt v. Boone, Interference No. 102,598; and Hyatt v. Boone U.S. Court of Appeals Federal Circuit 47 USPQ2d 1128, Decided June 17, 1998 Nos. 96-1514,-1515)). The complete reasoning and totality of the grounds of the Patent Interference No. 102,598 and Hyatt v.

Boone are each hereby incorporated in this objection and continue in this application. It is noted that the effective filing date for "single integrated circuit chip" for this application is December 14, 1977 (see Hyatt v. Boone).

8. All pending claims of this application (e.g. claims 5 and 41-97) directed to or indirectly make reference to a single chip, monolithic, or integrated on a chip computer and/or processor are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objection to the specification as indicated above.

9. All pending claims (eg., claims 5 and 41-97) are rejected to under 35 U.S.C. 112, second paragraph, since there are numerous cases where clear antecedent bases is lacking in many of the claims such as claim 265 (line 5 "the electronic data processing system") as just one of many such examples of numerous other such samples). Since there are numerous claims, any claims lacking antecedent bases are also rejected for the same reason. Also, claim 5 has two "b)" and two "c)" while claim 47 has two periods.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. All pending claims of this application (e.g., claims 5 and 41-97) are rejected under 35 U.S.C. 103(a) as being unpatentable over Beelitz et al. ("System architecture for large-scale integration" dated 1967 (Fall Joint Computer Conference) in view of any one of Electronic Design 22 (Oct 25, 1970 page 30), Electronic Design 3 (February 1, 1970 (pages 44-52)), or 4-bit Central Processor Unit by Intel (4004 dated 10/1/70), EDN (May 1, 1971 (page 17), Electronic Design (6/10/71 page 34), or Boone et al. (Patent No. 4,074,351) (all references are of record).

12. Per claim 5, and others like it, Beelitz taught a filter processor system comprising: an analog input device generating an analog input signal (eg., see page 193 (right (line 26-et seq.) a tape read input an analog signal such as light emitting from a hole within the paper to indicate a binary 1); an analog to digital converter coupled to the analog input device and generating digital signal samples in response to the analog input signal (since the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement); and an integrated circuit stored

program digital computer coupled to the analog to digital converter and generating an output signal in response to the digital signal samples (eg. see figure 3 on page 193), said integrated circuit stored program digital computer including:

- a) an integrated circuit read only memory storing a computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked),
- b) an integrated circuit input circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating input signal samples in response to the digital signal samples and in response to the computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked),
- c) an integrated circuit random access memory storing digital signal samples (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked),
- d) an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the input signal samples generated the integrated circuit input logic to said integrated circuit random access memory in response to the computer program (eg., see

page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked),

e) an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and accessing digital signal samples stored by said integrated circuit random access memory in response to the computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked), and

f) an integrated circuit processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples by filter processing the digital signal samples accessed by said accessing circuit in response to the computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked); and,

g) an integrated circuit output circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only memory and generating an output signal in response to the filter processed signal samples and in response to the computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3

"ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked).

13. While Beelitz did not specifically use the words such as "on a single integrated circuit chip" as the claim would suggest in light of the specification, though not specifically claimed, or the like, he did clearly state that his computer was a "Monolithic Computer" (see page 185 (line 12)) which clearly suggested that his system could be integrated onto a single integrated circuit chip as suggested on page 185 (left (first paragraph)). The word "Monolithic" finds its root in Latin in which "Mono" means one and "lithic" means stone, hence a system of "one stone", or chip. Furthermore, the applicant has provided the 1960's definition of the word "monolithic", on page 15 (lines 14-23, specifically lines 20-23), to be defined as a computer on a single integrated circuit chip. Furthermore, the alternative references clearly taught that placing such elements (ROM, RAM, Processor) onto a single chip would have been obvious to those skilled in the art. Also, these alternative references taught the other claimed limitations such as a serial keyboard, display, and the like. Specifically, Boone ('351) taught many things including:

- a) a serial input communication channel generating serial input communication information and a keyboard circuit generating keyboard information (e.g. figure 2 (196), Abstract, col. 2(lines 6-21));
- b) an integrated circuit operand memory storing computer operands (206 in figure 2), the integrated circuit operand memory implemented on the single integrated circuit chip (e.g. see col. 5 (lines 7-12));
- c) an integrated circuit operand memory accessing circuit coupled to the integrated circuit operand memory and generating accessed computer operands in response to the computer operands stored in the integrated circuit operand memory, the integrated circuit operand memory accessing circuit implemented on the single integrated circuit chip (e.g. see col. 5 (line 15-et seq.));
- d) an integrated circuit read only memory (208 in figure 2) storing a computer program comprising computer instructions and storing an interrupt program comprising interrupt instructions, the integrated circuit read only memory implemented on the single integrated circuit chip (e.g. see col. 4 (lines 66-68));
- e) an integrated circuit read only memory address circuit generating instruction addresses, the integrated circuit read only memory address circuit implemented on the single integrated circuit chip;
- f) an integrated circuit read only memory accessing circuit(190, 191 and 209) coupled to the integrated circuit read only memory and coupled to the integrated circuit read only memory address circuit, the integrated circuit read only memory accessing circuit

generating accessed computer instructions in response to the computer instructions stored in the integrated circuit read only memory and in response to the instruction addresses generated by the integrated circuit read only memory address circuit, the integrated circuit read only memory accessing circuit implemented on the single integrated circuit chip (e.g. see col. 10 (line 32-*et seq.*));

g) an integrated circuit instruction execution circuit (207 in figure 2) coupled to the integrated circuit operand memory accessing circuit and coupled to the integrated circuit read only memory accessing circuit, the integrated circuit instruction execution circuit generating first processed information in response to the accessed computer operands generated by the integrated circuit operand memory accessing circuit and in response to the accessed computer instructions generated by the integrated circuit read only memory accessing circuit, the integrated circuit instruction execution circuit implemented on the single integrated circuit chip (e.g. see col.5 (line 15-*et seq.*), 14 (line 50-*et seq.*)) among other things.

14. It would have been obvious to one of ordinary skill in the Data Processing art at the time of the invention to combine the teachings of Beelitz with Boone or any of these references to provide memory storage on the same chip since they were directed to a single integrated circuit chip that processed data with on chip memory storage because it would reduce the size of the computer, reduce overall system power consumption, increase processing speed, and improve reliability of the computer by reducing loose wire connections between components.

41. While this paragraph numbering is out of order, the number for this paragraph, and those to follow, will map to the claim being so addressed. As for claim 41-97, Beelitz also taught a filter processor system comprising:

an analog input device generating an analog input signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.);

an analog to digital converter coupled to the analog input device and generating digital signal samples in response to the analog input signal (eg., see page 190 (right (lines 3-

12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.); and a single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.) stored program digital computer coupled to the analog to digital converter and generating digital output signal samples in response to the digital signal samples, wherein the single integrated circuit chip stored program digital computer is implemented on a single integrated circuit chip, and wherein the single integrated circuit chip stored program digital computer includes:

a) an integrated circuit read only memory storing a computer program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or

stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

b) an integrated circuit input circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating input signal samples in response to the digital signal samples and in response to the computer program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

c) an integrated circuit random access memory storing computer signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

d) an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the computer signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the computer program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip,
e) an integrated circuit accessing circuit coupled to the integrated circuit random access

memory and to the integrated circuit read only memory and accessing computer signal samples stored by the integrated circuit random access memory in response to the computer program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

f) an integrated circuit processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples by filter processing the computer signal samples accessed by the integrated circuit accessing circuit in response to the computer program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.), and

g) an integrated circuit output circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only memory and generating the digital output signal samples in response to the filter processed signal samples and in response to the computer program, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications,

Art Unit 2152

page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.).

42. A filter processor system as set forth in claim 41, further comprising: a sound circuit coupled to the integrated circuit output circuit and generating an electrical sound signal in response to the digital output signal sample, and a sound transducer coupled to the sound circuit and generating an acoustic sound in response to the electrical sound signal (since aircrafts (eg., see page 185 (left (bottom "Air Force Avionics")) had radios, such was obvious on an aircraft controlled by such a computer).

43. A filter processor system as set forth in claim 41, further comprising: a display circuit coupled to the integrated circuit output circuit and generating a display signal in response to the digital output signal samples and a display monitor coupled to the display circuit and generating a display in response to the display signal (see page 193 (figure 3) in that computer monitors would have been an obvious replacement equivalent for a teletype).

44. A filter processor system as set forth in claim 41, further comprising a digital to analog converter circuit coupled to the integrated circuit output circuit and generating an analog output signal in response to the digital output signal samples (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 "INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.).

45. A filter processor system as set forth in claim 41, wherein the integrated circuit output circuit is an integrated circuit serial output circuit generating the digital output signal samples as serial digital output signal samples in response to the in response to the filter processed signal samples and in response to the computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.).

46. A filter processor system as set forth in claim 41, wherein the analog to digital converter generates the digital signal samples as serial digital signal samples and wherein the integrated circuit input circuit is an integrated circuit serial input circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating the input signal samples in response to the serial digital signal samples and in response to the computer program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.).

47. A receiver system comprising:
an antenna generating an antenna signal (eg., see page 185 (left (bottom)), military jets had radios);
an amplifier coupled to the antenna and generating an amplified signal in response to the

antenna signal (see above);

a sampling circuit coupled to the amplifier and generating received signal samples in response to the amplified signal (see above); and

a single integrated circuit chip signal processor coupled to the amplifier and generating output signal samples in response to the received signal samples, wherein the single integrated circuit chip signal processor is implemented on a single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, Beelitz is viewed as an integrated on a single integrated circuit chip in view of the other cited references), and wherein the single integrated circuit chip signal processor includes:

a) an integrated circuit read only memory storing a signal processing program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

b) an integrated circuit input circuit coupled to the integrated circuit read only memory and to the sampling circuit and generating input signal samples in response to the received signal samples and in response to the signal processing program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3

'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

c) an integrated circuit random access memory storing signal processor signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.),

d) an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the signal processor signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the signal processing program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value,

and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.), e) an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and generating accessed signal samples by accessing the signal processor signal samples from the integrated circuit random access memory in response to the signal processing program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.), f) an integrated circuit processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples by filter processing the accessed signal samples in response to the signal processing program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.), and g) (while (g) is illogical, examiner will address it in whole) an integrated circuit output circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only process on the fly. It is applied to various systems; such as for seismic exploration, communication, and display. It is implemented in various configurations, including

integrated circuit and single chip implementations. Filter processing is implemented in various forms; including single bit, incremental, and whole number forms. Signal to noise ratio is enhanced, such as by composing, adaptive control is implemented by monitoring the filtered signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement.).

48. A receiver system as set forth in claim 47, further comprising:
a sound circuit coupled to the integrated circuit output circuit and generating an electrical sound signal in response to the output signal
samples and a sound transducer coupled to the sound circuit and generating an acoustic sound in response to the electrical sound signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

49. A receiver system as set forth in claim 47, further comprising:
a display circuit coupled to the integrated circuit output circuit and generating a display signal in response to the output signal samples and
a display monitor coupled to the display circuit and generating a display in response to the

display signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

50. A receiver system comprising:

an antenna generating an antenna signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an amplifier coupled to the antenna and generating an amplified signal in response to the antenna signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a

motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); a sampling circuit coupled to the amplifier and generating received signal samples in response to the amplified signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); a single integrated circuit chip signal processor (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) coupled to the amplifier and generating output signal samples in response to the received signal samples, wherein the single integrated circuit chip signal processor is implemented on a single integrated circuit chip, and wherein the single

integrated circuit chip signal processor includes

- a) an integrated circuit read only memory storing a signal processing program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets),
- b) an integrated circuit input circuit coupled to the integrated circuit read only memory and to the sampling circuit and generating input signal samples in response to the received signal samples and in response to the signal processing program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets),
- c) an integrated circuit random access memory storing signal processor signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications,

page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets),

d) an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the signal processor signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the signal processing program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets),

e) an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and generating accessed signal samples by accessing the signal processor signal samples from the integrated circuit random access memory in response to the signal processing program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3

"ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets),

f) an integrated circuit processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples b filter processing the accessed signal samples in response to the signal processing program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and

g) an integrated circuit output circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only memory and generating the output signal samples in response to the filter processed signal samples and in response to the signal processing program, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to

manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

a digital to analog converter circuit coupled to the integrated circuit output circuit and generating an analog output signal in response to the output signal samples (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

51. A receiver system as set forth in claim 47, wherein the integrated circuit output circuit is an integrated circuit serial output circuit generating the output signal samples as serial digital output signal samples in response to the filter processed signal samples and in response to the signal processing program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a

binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

52. A receiver system as set forth in claim 47, wherein the sampling circuit generates the received signal samples as serial digital received signal samples and wherein the integrated circuit input circuit is an integrated circuit serial input circuit coupled to the integrated circuit read only memory and to the sampling circuit and generating the input signal samples in response to the serial digital received signal samples and in response to the signal processing program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

53. A digital signal processor comprising:
a single integrated circuit chip having a digital signal processor implemented thereon (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed

and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit read only memory storing a signal processor program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the signal processor program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit random access memory storing signal processor signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory

requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the signal processor signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the signal processor program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and accessing signal processor signal samples stored by the integrated circuit random access memory in response to the signal processor program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial

communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit signal processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating signal processed signal samples by signal processing the signal processor signal samples accessed by the integrated circuit accessing circuit in response to the signal processor program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and an integrated circuit output circuit coupled to the integrated circuit signal processing circuit and to the integrated circuit read only memory and generating the digital output signal samples in response to the signal processed signal samples and in response to the signal processor program, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))))

and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

54. A digital signal processor as set forth in claim 53, further comprising: a sound circuit coupled to the integrated circuit output circuit and generating an electrical sound signal in response to the output signal samples and a sound transducer coupled to the sound circuit and generating an acoustic sound in response to the electrical sound signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

55. A digital signal processor as set forth in claim 53, further comprising: a display circuit coupled to the integrated circuit output circuit and generating a display signal in response to the digital output signal samples and a display monitor coupled to the display circuit and generating a display in response to the display signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine

elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

56. A digital signal processor comprising:

a single integrated circuit chip having a digital signal, processor implemented thereon (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
an integrated circuit read only memory storing A signal processor program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had

radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the signal ,processor program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit random access memory storing signal processor signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the signal processor signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the signal processor

program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and accessing signal processor signal samples stored by the integrated circuit random access memory in response to the signal processor program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit signal processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating signal processed signal samples by signal processing the signal processor signal samples accessed by the integrated circuit accessing circuit in response to the signal processor program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip

(eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit output circuit coupled to the integrated circuit signal processing circuit and to the integrated circuit read only memory and generating the digital output signal samples in response to the signal processed signal samples and in response to the signal processor program, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and a digital to analog converter circuit coupled to the integrated circuit output circuit and generating an analog output signal in response to the digital output signal samples (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted

stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets. As for "sound", such was held unpatentable in *Hyatt v. Matel*).

57. A digital signal processor as set forth in claim 53, wherein the integrated circuit output circuit is an integrated circuit serial output circuit generating the digital output signal samples as serial digital output signal samples in response to the filter processed signal samples and in response to the signal processing program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

58. A digital signal processor as set forth in claim 53, wherein the integrated circuit input circuit is an integrated circuit serial input circuit coupled to the integrated circuit read only memory and generating the input signal samples as serial input signal samples and in response to the signal processing program (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was

a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

59. A filter processor implemented on a single integrated circuit chip comprising: an integrated circuit read only memory storing instructions, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit alterable memory storing operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed

and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signals and in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit processing circuit coupled to the integrated circuit read only memory

and to the integrated circuit alterable memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

- a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) and
- b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and to the integrated circuit multiplier circuit and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for

serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

an integrated circuit output circuit coupled to the integrated circuit read only memory and to the integrated circuit adder circuit and generating output operands by outputting the filtered operands in response to the instructions, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

60. A correlator filter processor implemented on a single integrated circuit chip comprising:

an integrated circuit read only memory storing correlator instructions wherein the integrated circuit read only memory is implemented on the same integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted

stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit alterable memory storing correlator operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted

into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signals and in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and;

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating correlation filtered operands in response to the correlator operands and in response to the correlator instructions, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and wherein

the integrated circuit processing circuit includes

- a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating correlation product operands by multiplying correlator operands in response to correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets. Also, the fix ROM stored such instructions on page 190 (left (last line-et seq.)) which is a software equivalent to hardware); and
- b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and to the integrated circuit multiplier circuit and generating correlation filtered operands by adding the correlation product operands in response to the correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

an integrated circuit output circuit coupled to the integrated circuit read only memory and to the integrated circuit adder circuit and generating correlator output operands by outputting the correlator filtered operands in response to the correlator instructions,

wherein the integrated circuit output circuit is implemented on the since integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

61. A filter processor implemented on a single integrated circuit chip as set forth in claim 59, further comprising: an integrated circuit synchronization circuit generating synchronization signals, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit is coupled to the integrated circuit synchronization circuit and further generates the filtered operands in response to the synchronization signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple

teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

62. A filter processor implemented on a single integrated circuit chip comprising an integrated circuit read only memory storing instructions, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 "INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit alterable memory storing operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 "INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or

stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signals and in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical

sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit iterative processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and iteratively generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit iterative processing circuit is implemented on the single integrated circuit chip, and wherein the integrated circuit iterative processing circuit includes;

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets, and see above with respect to multiplier); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and to the integrated circuit multiplier circuit and generating filtered operands adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical

sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

an integrated circuit output circuit coupled to the integrated circuit read only memory and to the integrated circuit adder circuit and generating output operands by outputting the filtered operands in response to the instructions, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

63. A filter processor implemented on a single integrated circuit chip as set forth in claim 59, wherein the integrated circuit processing circuit is an integrated circuit multiple loop iterative processing circuit iteratively generating the filtered operands with multiple iterative loops (loops was a function of computers).

64. A filter processor implemented on a single integrated circuit chip comprising: an integrated circuit read only memory storing instructions, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed

and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit dynamic random access alterable memory storing operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a refresh circuit coupled to the integrated circuit alterable memory and refreshing the integrated circuit alterable memory an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing

operands into the integrated circuit alterable memory in response to the input signals and in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and wherein the integrated circuit Processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a

dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and to the integrated circuit multiplier circuit and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

and an integrated circuit output circuit coupled to the integrated circuit read only memory and to the integrated circuit adder circuit and generating output operands by outputting the filtered operands in response to the instructions, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also,

wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

65. A filter processor implemented on a single integrated circuit chip comprising: an integrated circuit read only memory storing instructions, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit alterable memory storing operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed

and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signal samples and in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory

and to the integrated circuit alterable memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

- a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) and
- b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190

(figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

66. A filter processor implemented on a single integrated circuit chip as set forth in claim 65, wherein the filter processor is a correlator filter processor wherein the integrated circuit read only memory stores the instructions as correlator instructions;

wherein the integrated circuit alterable memory stores the operands as correlator operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more

machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit generates the filtered operands as correlation filtered operands in response to the correlator operands and in response to the correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and

wherein the integrated circuit output circuit generates the output operands by outputting the correlation filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had

radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

67. A filter processor implemented on a single integrated circuit chip as set forth in claim 65, further comprising:

an integrated circuit synchronization circuit generating a synchronization signal, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit is coupled to the integrated circuit synchronization circuit and further generates the filtered operands in response to the synchronization signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

68 A filter processor implemented on a single integrated circuit chip comprising:

an integrated circuit read only memory storing instructions, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
an integrated circuit alterable memory storing operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a

register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signal samples and in response-to the instructions, wherein the integrated circuit input circuit is implemented on the since integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit iterative processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and iteratively generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs

and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

b) multiplying operands in response to the instructions and hl an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a

sound transducer of the radio which was inherently required in military jets); and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

69. A filter processor implemented on a single integrated circuit chip comprising: an integrated circuit read only memory storing instructions, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets)

an integrated circuit alterable memory storing operands, wherein the integrated circuit alterable memory is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could

have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT') for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets)

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the instructions, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT') for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets)

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signal samples and in response to the instructions, wherein the integrated circuit input circuit is implemented on the since integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT') for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified

electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets)

an integrated circuit multiple loop iterative processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and iteratively generating filtered operands with multiple iterative loops in response to the operands and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and wherein the integrated circuit processing circuit includes

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback

acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in

military jets).

70. A filter processor implemented on a single integrated circuit chip as set forth in claim 65, wherein the integrated circuit alterable memory includes an integrated circuit dynamic random access alterable memory dynamically storing operands, said filter processor further comprising a refresh circuit coupled to the integrated circuit alterable memory and refreshing the integrated circuit alterable memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

71. An integrated circuit filter processor comprising:
an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
an integrated circuit alterable memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been

a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instruction (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) s;

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a

teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted

into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

72. An integrated circuit filter processor as set forth in claim 71: wherein the filter processor is a correlator filter processor;

wherein the integrated circuit read only memory stores the instructions as correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190

(figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit alterable memory stores the operands as correlator operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit generates the filtered operands as correlation filtered operands in response to the correlator operands and in response to the correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an

analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and

wherein the integrated circuit output circuit generates the output operands by outputting the correlation filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

73. An integrated circuit filter processor as set forth in claim 71, further comprising: an integrated circuit synchronization circuit generating synchronization signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); wherein the integrated circuit processing circuit is coupled to the integrated circuit

synchronization circuit and further generates the filtered operands in response to the synchronization signs (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) I.

74. An integrated circuit filter processor as set forth in claim 71, wherein the integrated circuit processing circuit is an integrated circuit iterative processing circuit iteratively generating the filtered operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

75. An integrated circuit filter processor as set forth in claim 71, wherein the integrated circuit processing circuit is an integrated circuit multiple loop iterative processing circuit iteratively generating the filtered operands with multiple iterative loops (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3

'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

76. An integrated circuit filter processor comprising: an integrated circuit read only memory storing instructions

an integrated circuit dynamic random access alterable memory dynamically storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

refresh circuit coupled to the integrated circuit dynamic random access alterable memory and refreshing the integrated circuit dynamic random access alterable memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and

feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently

required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit, alterable memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring

refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

77. An integrated circuit filter processor comprising:
an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data

that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit alterable memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input signal

samples and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating filtered operands in response to the operands and in response to the instructions, and wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and

page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory 'and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically

sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

78. An integrated circuit filter processor as set forth in claim 77:
wherein the filter processor is a correlator filter processor (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
wherein the integrated circuit read only memory stores the instructions as correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
wherein the integrated circuit alterable memory stores the operands as correlator operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193

(right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit generates the filtered operands as correlation filtered operands in response to the correlator operands and in response to the correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and

wherein the integrated circuit output circuit generates the output operands by outputting the correlation filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read

is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

79. An integrated circuit filter processor as set forth in claim 77, further comprising: an integrated circuit synchronization circuit generating a synchronization signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit is coupled to the integrated circuit synchronization circuit and further generates the filtered operands in response to the synchronization signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

80. An integrated circuit filter processor as set forth in claim 77, wherein the integrated

circuit processing circuit is an integrated circuit iterative processing circuit iteratively generating the filtered operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

81. An integrated circuit filter processor as set forth in claim 77, wherein the integrated circuit processing circuit is an integrated circuit multiple loop iterative processing circuit iteratively generating the filtered operands with multiple iterative loops (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

82. An integrated circuit filter processor as set forth in claim 77, wherein the integrated circuit alterable memory includes an integrated circuit dynamic random access alterable memory dynamically storing operands, said filter processor further comprising a refresh circuit coupled to the integrated circuit alterable memory and refreshing the integrated circuit alterable memory (eg., see page 190 (right (lines 3-12)) for the read only memory,

page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

83. An integrated circuit filter processor comprising:
an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);
an integrated circuit dynamic random access memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and

feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit dynamic random access memory and writing operands into the integrated circuit dynamic random access memory in response to the input signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a

sound transducer of the radio which was inherently required in military jets); an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring

refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit refresh circuit coupled to the integrated circuit dynamic random access memory and refreshing the integrated circuit dynamic random access memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such

as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

84. An integrated circuit filter processor comprising: an analog to digital converter generating digital converter signals in response to analog input signals

an integrated circuit read only memory storing (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit dynamic random access memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating input signals in response to the

instructions and in response to the digital converter signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit dynamic random access memory and writing operands into the integrated circuit dynamic random access memory in response to the input signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry,

and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such

as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit refresh circuit coupled to the integrated circuit dynamic random access memory and refreshing the integrated circuit dynamic random access memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

85. An integrated circuit filter processor comprising:
an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines

3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit dynamic random access memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data

that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit dynamic random access memory and writing operands into the integrated circuit dynamic random access memory in response to the input signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical

sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating product operands by multiplying operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit refresh circuit coupled to the integrated circuit dynamic random access memory and refreshing the integrated circuit dynamic random access memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3

"ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and a digital to analog converter coupled to the integrated circuit output circuit and generating an analog output signal in response to the output operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the

analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

86. An integrated circuit filter processor comprising:

an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit dynamic random access memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signals in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT

UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit dynamic random access memory and writing operands into the integrated circuit dynamic random access memory in response to the input signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating filtered operands in response to the operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was

a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit dynamic random access memory and generating product operands by multiplying operands in response to the instructions and b) an integrated circuit adder circuit coupled to the integrated circuit read only memory . and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit refresh circuit coupled to the integrated circuit dynamic random access memory and refreshing the integrated circuit dynamic random access memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read

is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a digital to analog converter coupled to the integrated circuit output circuit and generating an analog output signal in response to the output operands; and a display coupled to the digital to analog converter and displaying information in response to the analog output signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

87. An integrated circuit filter processor system comprising:
an analog to digital converter generating digital communication signals in response to

analog communications input signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit alterable memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data

that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input communications signals in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input communications signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating filtered operands in response to the communications operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

- a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying communications operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-*et seq.*) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) and
- b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190

(figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

88. An integrated circuit filter processor system as set forth in claim 87:

wherein the filter processor is a correlator filter processor (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from

a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit read only memory stores the instructions as correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit alterable memory stores the operands as correlator operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit generates the filtered operands as correlation filtered operands in response to the correlator operands and in response to the correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications,

page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and

wherein the integrated circuit output circuit generates, the output operands by outputting the correlation filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

89. An integrated circuit filter processor system as set forth in claim 87, further comprising: an integrated circuit synchronization circuit generating synchronization signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or

stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit is coupled to the integrated circuit synchronization circuit and further generates the filtered operands in response to the synchronization signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

90. An integrated circuit filter processor system as set forth in claim 87, wherein the integrated circuit processing circuit is an integrated circuit iterative processing circuit iteratively generating the filtered operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently

required in military jets).

91. An integrated circuit filter processor system comprising:

an analog to digital converter generating digital communication signals in response to analog communications input signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit read only memory storing instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit alterable memory storing operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital

data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input communications signals in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit writing circuit coupled to the integrated circuit read only memory, integrated circuit input circuit, and to the integrated circuit alterable memory and writing operands into the integrated circuit alterable memory in response to the input communications signals and in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the

analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

an integrated circuit multiple loop iterative processing circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and iteratively generating filtered operands with multiple iterative loops in response to the communications operands and in response to the instructions, wherein the integrated circuit processing circuit includes (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

a) an integrated circuit multiplier circuit coupled to the integrated circuit read only memory and to the integrated circuit alterable memory and generating product operands by multiplying communications operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets) and

b) an integrated circuit adder circuit coupled to the integrated circuit read only memory and generating filtered operands by adding the product operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets); and an integrated circuit output circuit coupled to the integrated circuit read only memory and generating output operands by outputting the filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

92. An integrated circuit filter processor system as set forth in claim 87, wherein the integrated circuit alterable memory includes an integrated circuit dynamic random access alterable memory dynamically storing operands, said filter processor further comprising a refresh circuit coupled to the integrated circuit alterable memory and refreshing the integrated circuit alterable memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial

communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

93. An integrated circuit filter processor as set forth in claim 86, wherein the filter processor is a correlator filter processor (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios and sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit read only memory stores the instructions as correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pulses to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such

as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit alterable memory stores the operands as correlator operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit generates the filtered operands as correlation filtered operands in response to the correlator operands and in response to the correlator instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets), and

wherein the integrated circuit output circuit generates the output operands by outputting the correlation filtered operands in response to the instructions (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have

been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT') for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

94. An integrated circuit filter processor as set forth in claim 86, further comprising: an integrated circuit synchronization circuit !generating synchronization signals (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT') for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets);

wherein the integrated circuit processing circuit is coupled to the integrated circuit synchronization circuit and further generates the filtered operands in response to the synchronization signal (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT') for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype

which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

95. An integrated circuit filter processor as set forth in claim 86, wherein the integrated circuit processing circuit is an integrated circuit iterative processing circuit iteratively generating the filtered operands (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

96. An integrated circuit filter processor as set forth in claim 86, wherein the integrated circuit processing circuit is an integrated circuit multiple loop iterative processing circuit iteratively generating the filtered operands with multiple iterative loops (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read

is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

97. An integrated circuit filter processor as set forth din claim 86, wherein the integrated circuit alterable memory includes an integrated circuit dynamic random access alterable memory dynamically storing operands, said filter processor further comprising a refresh circuit coupled to the integrated circuit alterable memory and refreshing the integrated circuit alterable memory (eg., see page 190 (right (lines 3-12)) for the read only memory, page 190 (figure 3 "MEMORY" which could have been a dynamic random access memory requiring refresh, page 190 (figure 3 'INPUT/OUTPUT UNIT") for serial communications, page 190 (figure 3 "ARITHMETIC UNIT" for a processing circuitry, and the multiple teletypes (on page 193 (right (line 26-et seq.) and page 193 (left (lines 4-6)))) and other machines that converted stored in a register digital data into amplified electrical pules to manipulate one or more machine elements. Also, wherein the size was a matter of obvious design choice and use of CRTs and computer monitors could be used over a teletype which also had a motor and feedback acknowledgment and a keyboard that required a shift register that latched or stored data that was clocked. Also, a tape reader inputs an analog signal such as light emitting from a hole within the paper to indicate a binary value, and while the data read is digital, the analog light signal emitted through the hole of the tape is optically sensed and converted into a digital signal for the computer to implement. Also, military jets had radios an sound circuits for generating an electrical sound signal was required to drive a sound transducer of the radio which was inherently required in military jets).

15. The claims thus been treated, normal paragraph numbering is resumed. However, for all pending claims, such as those above, directly or indirectly reciting "integrated on a single integrated circuit chip", it would have been obvious to those skill in the computer art to place the system of Beelitz (eg., as shown in figure 3 and elsewhere) onto a single integrated circuit chip because he made reference to such on page 185 (left (line 1-et seq.)) and because on line 12 (right) of page 185 he stated his computer was a "Monolithic" computer, that being of "one" "stone" further suggesting a single integrated circuit chip as mentioned in this application on page 15 (lines 19-23)) which stated that a monolithic computer, as defined in the late 1960s, was a single integrated chip that contained the computer. . Also, on page 51 (left (lines 35-39)) of Electronic Design 3 (2/1/70) it stated that "there are always those chips that are weird. For example, some chips contain both logic and a little bit of read-only memory right in the chip to microprogram just that chip". Since read-only memory could be placed on the chip so could random access memory (eg., DRAM) thus resulting in a very basic computer on an integrated chip that had ROM, RAM, and a processor "logic" which were the required elements of Beelitz on page 190 "fixed-memories" and in figure 3 on that page. Also, this

computer on a chip would be very limited as far as components and direct hardware functions but more complex functions could be performed by microprograms (see Beelitz on page 190 (left (last line-et seq.))), thus just a little logic, a little RAM, and a little bit of ROM to microprogram that chip to function as a computer, such very limited number of gates could obviously have been placed onto a single integrated chip with the "packing densities" (Beelitz page 185 (left (line 12)) which was adequate to hold the required number of transistors to form a little RAM, little processing logic, and a little bit of read only memory right on that chip to microprogram just that chip. Since the chip was a computer, it therefore could be utilized to perform any task which were performed by computers (eg., display, compute velocity, brakes, make disks, milling machine control, machine control, accounting number computations, and the likes recited in the above claims), and it has been held that such a recitation with respect to the manner in which a claimed system, apparatus, or a process equivalent to such a claimed system and/or claimed apparatus is intended to be employed does not differentiate the claimed system from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Thus in conclusion of this rejected under 35 United States Code 103, placing RAM, Processing logic, and a little read only memory to microprogram just that chip to control that which computers of the prior art controlled, such as Beelitz, would have been obvious to those skilled in the computer art because it would provide the enhancements mentioned by Beelitz on page 185 (left (line 1-et seq.)) by increasing the system by reducing the delays that occur in interconnection wiring by integrating the system onto a single integrated circuit chip or "flat-packs".

16. All pending claims of this application (claims 5 and 41-97) are rejected under 35 U.S.C. 102/103 for the reasons given on page 18-et seq. of the Board of Patent Appeals and Interferences (see Decision at Final Hearing: March 21, 1995, *Hyatt v. Boone*, Interference No. 102,598 as upheld by *Hyatt v. Boone* U.S. Court of Appeals Federal Circuit 47 USPQ2d 1128, Decided June 17, 1998 Nos. 96-1514,-1515)). The complete reasoning and totality of those grounds as given in the Patent Interference No. 102,598 and *Hyatt v. Boone* are each hereby incorporated in this action by reference and continue in this application.

17. In conclusion, placing the system of Beelitz figure 3 on page 190, or an equivalent computer of the type with memory, processing logic, and read only memory to microprogram just that computer, onto a single integrated circuit chip, would have been obvious to those skilled in the computer art for all of the reasons outline above. Furthermore, as shown by Hughes, such was done and thus anticipated the claimed invention. Since such a chip fulfilled the definition of a computer, it could obviously have been programed to carry out any known computer functions (e.g., keyboard control, display control, aircraft control, clock control, phone control, car control, bike control, toy control, remote control, games, printer control, mouse control, network control, tv control, VCR control, radio control, missile control, accounting, velocity, disk production, stopping,

accelerate, exc... anything that can be done with a computer pre-Dec-1970).

18. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02,710.02(b)).

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Harrell whose telephone number is (703) 305-9692 any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart, can be reached at (703) 305-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 746-7239, (for **formal communications**; please mark "EXPEDITED PROCEDURE").

Or:

(703) 746-7240 (for **informal or draft communications**, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).


Robert B. Harrell
Primary Examiner
September 28, 2001